



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/665,352	09/22/2003	Eric Lescouet	1483-29	4925

23117 7590 04/26/2007
NIXON & VANDERHYE, PC
901 NORTH GLEBE ROAD, 11TH FLOOR
ARLINGTON, VA 22203

EXAMINER

WILSER, MICHAEL P

ART UNIT	PAPER NUMBER
----------	--------------

2109

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	04/26/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/665,352

Applicant(s)

LESCOUET ET AL.

Examiner

Michael Wilser

Art Unit

2109

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 January 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-31 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-31 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 September 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>6/1/05</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This action is in response to the preliminary amendment filing of January 16, 2004. Claims 1-31 are pending and have been considered below.

Information Disclosure Statement

2. The listing of references in the specification is not a proper information disclosure statement. 37 CFR 1.98(b) requires a list of all patents, publications, or other information submitted for consideration by the Office, and MPEP § 609.04(a) states, "the list may not be incorporated into the specification but must be submitted in a separate paper." Therefore, unless the references have been cited by the examiner on form PTO-892, they have not been considered.

Drawings

3. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: 2012 on page 14, line 8, 2014 on page 15, line 4, 2022 on page 15, line 21, 2028 on page 16, line 2, 2024 on page 16, line 11, 2026 on page 16, line 15, 207 on page 17, line 13, 403 on page 18, line 1, and 101 on page 34, line 21.
4. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the

description: 207a in Figure 2b, 304 in Figure 3, 310 in Figure 3, 4064 in Figure 5, 4062 in Figure 5, 207a, in Figure 9a, 207a in Figure 9b, and 107 in Figure 9b.

5. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

6. The disclosure is objected to because of the following informalities: the examiner notes the use of acronyms (e.g. IDE, SCSI, etc.) throughout the specification without first including a description in plain text, as required.

7. The disclosure is objected to because it contains an embedded hyperlink and/or other form of browser-executable code. Applicant is required to delete the embedded hyperlink and/or other form of browser-executable code. See MPEP § 608.01.

8. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

Appropriate correction is required.

Claim Objections

9. Claims 25-27 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim.

Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Claim 25 has the same steps as Claim 1 with the only difference being that the claim is aimed at a computer program product. Claim 26 has the same limitations as Claim 20 with the only difference being that the claim is aimed at a product. Claim 27 has the same steps as Claim 27 with the only difference being that the claim is aimed at a system.

Claim Rejections - 35 USC § 112

10. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

11. Claims 4, 7, and 22 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

12. In Claim 4, line 2 the applicant uses the terminology "variant thereof". It is unclear as to what is meant by variant since the applicant already states the operating system can be a version of Linux. Therefore, it is unclear whether the variant is a variant of the version or an operating system that is a variant of Linux itself. For purpose of

Art Unit: 2109

examination the examiner is interpreting the claim as meaning a variant of the Linux operating system and not one particular version.

13. In Claim 7, line 3 the applicant uses the terminology "operating system to service them". It is unclear as to if the service is being done on the processor exceptions or on the exception handler. Therefore, it is unclear as to what is being serviced by the operating system. For purpose of examination the examiner is interpreting the claim is meaning the processor exceptions are being serviced and the claim should be amended to read as "to service said processor exceptions".

14. In Claim 22, line 4 the applicant uses the terminology "running on them". It is unclear as to whether the applications are running on the first operating system, the second operating system, both operating systems, or some other system. Therefore, it is unclear as to what system the applications are running on. For purpose of examination the examiner is interpreting the claim as meaning the first and second operating systems and the claim should be amended to read as "running on said first and second operating systems".

Claim Rejections - 35 USC § 102

15. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Art Unit: 2109

16. Claims 1-31 are rejected under 35 U.S.C. 102(b) as being anticipated by Ohno et al. (EP 1,162,536).

Claims 1 and 25: Ohno discloses a method and computer readable medium for enabling multiple different operating systems to run concurrently on the same computer (column 1, paragraph 1), comprising:

- a. selecting a first operating system to have a relatively high priority (column 4, paragraph 14);
- b. selecting a second operating system to have a relatively lower priority (column 4, paragraph 13);
- c. providing a common program arranged to switch between the operating systems under predetermined conditions (column 2, paragraph 6); and
- d. providing modification to first and second operating system to allow them to be controlled by the common program (column 2, paragraph 6).

Claim 2: Ohno discloses a method as in Claim 1 above, and further discloses that the first operating system is a real-time operating system (column 4, paragraph 14).

Claim 3: Ohno disclose a method as in Claim 1 above, and further discloses that the second operating system is a non-real time, general purpose operating system (column 4, paragraph 13).

Claim 4: Ohno discloses a method as in Claim 1 above, and further discloses that the second operating system is a Linux system or variant thereof (column 4, paragraph 13).

Claim 5: Ohno discloses a method as in Claim 1 above, and further discloses that the common program is arranged to save and restore the processor state required to switch between the operating systems (column 2, paragraph 6).

Claim 6: Ohno discloses a method as in Claim 1 above, and further discloses that processor exceptions for the second operating system are handled by the common program (columns 9 & 10, paragraphs 31-34).

Claim 7: Ohno discloses a method as in Claim 1 above, and further disclose that the common program intercepts processor exceptions and calls exception handling routines of the operating system to service them (columns 3 & 4, paragraph 12).

Claim 8: Ohno discloses a method as in Claim 7 above, and further discloses that the processor exceptions for the second system are notified as virtual exceptions (columns 9 & 10, paragraphs 31-34).

Claim 9: Ohno discloses a method as in Claim 8 above, and further discloses that the common program is arranged to call the exception handling routine of the second system corresponding to the pending exception (column 9 & 10, paragraphs 31-34).

Claim 10: Ohno discloses a method as in Claim 1 above, and further discloses that each operating system has separate memory spaces in which each can exclusively operate (column 2, paragraph 7).

Claim 11: Ohno discloses a method as in Claim 1 above, and further discloses that the systems have an I/O device that is exclusive to that system (column 5, paragraph 18).

Claim 12: Ohno discloses a method as in Claim 11 above, and further discloses that each operating system accesses the I/O devices through native routines (column 5, paragraph 19).

Claim 13: Ohno discloses a method as in Claim 1 above, and further discloses that each operating system has access to a second I/O device which is shared between the systems (column 5, paragraph 18).

Claim 14: Ohno discloses a method as in Claim 13 above, and further discloses that all systems access the second I/O device through routines of the first system (column 5, paragraph 19).

Art Unit: 2109

Claim 15: Ohno discloses a method as in Claim 1 above, and further discloses that a restart routine is provided for restarting the second system without interrupting operation of the first system or the common program (column 2, paragraph 6).

Claim 16: Ohno discloses a method as in Claim 15 above, and further discloses that the common program provides mechanisms to control the second system and to notify the first system of status changes in the second (column 2, paragraphs 6 & 7).

Claim 17: Ohno discloses a method as in Claim 15 above, and further disclose that the common program stores a copy of the system kernel of the second system and is arranged to restore the kernel of the second system from a saved copy (column 2, paragraph 6).

Claim 18: Ohno discloses a method a sin Claim 15 above, and further discloses that the first and second system have cooperating routines to enable the first system to monitor the second and detect crashes of the second system (column 2, paragraphs 6 & 7).

Claim 19: Ohno discloses a method as in Claim 1 above, and further discloses that the common program is arranged to output machine state variables on occurrence of predefined conditions in the operating systems (column 11, paragraph 37).

Art Unit: 2109

Claims 20 and 26: Ohno discloses a method as in Claim 1 above, and further discloses of combining the operating systems and common program into a single code packet (column 7, paragraph 27).

Claim 21: Ohno discloses a method as in Claim 1 above, and further discloses of embedding the operating systems and common program onto persistent memory (column 7, paragraph 27).

Claim 22: Ohno discloses a method as in Claim 1 above, and further discloses that the common program is arranged to provide inter-operating system communication allowing communication between the first and second operating systems (column 2, paragraph 7).

Claim 23: Ohno discloses a method as in Claim 22 above, and further discloses that the common program defines I/O devices corresponding to bus bridges so that the operating system can communicate via a communication bus (column 12, paragraph 40).

Claims 24 and 27: Ohno discloses a method as in Claim 23 above, and further discloses of adding driver routines to manage bus bridge devices (column 12, paragraph 40).

Art Unit: 2109

Claim 28: Ohno discloses of a computer system comprising a CPU, memory, and I/O devices (column 3, paragraph 10), comprising:

- a. a first operating system having a relatively high priority (column 4, paragraph 14);
- b. a second operating system having a relatively lower priority (column 4, paragraph 13); and
- c. a common program arranged to run the operating systems concurrently by switching between the operating systems under predefined conditions (column 2, paragraph 6).

Claim 29: Ohno discloses a system as in Claim 28 above, and further discloses of the system performing a method of:

- a. selecting a first operating system to have a relatively high priority (column 4, paragraph 14);
- b. selecting a second operating system to have a relatively lower priority (column 4, paragraph 13);
- c. providing a common program arranged to switch between the operating systems under predetermined conditions (column 2, paragraph 6); and
- d. providing modification to first and second operating system to allow them to be controlled by the common program (column 2, paragraph 6).

Art Unit: 2109

Claim 30: Ohno discloses a method as in Claim 1 above, and further discloses that each operating system is provided with an idle routine (column 4, paragraph 15).

Claim 31: Ohno discloses a method as in Claim 30, above and further discloses that the idle routine substitutes for a processor halt instruction (column 4, paragraph 15).

Conclusion

17. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.


- a. Hung-Ju et al. (US 2002/0078339) Booting system and booting method for an assistant operation system.
- b. Venkatraman et al. (US 6,920,633) Cross-process common system resource data sharing.
- c. Gurumoorthy et al. (US 6,868,507) Operating system independent.
- d. Orton et al. (US 6,684,261) Object-oriented operating system.
- e. Orton et al. (US 6,606,742) Object-oriented interface for portability to diverse operating systems or hardware platforms.
- f. Mirashrafi et al. (US 6,199,096) Method and apparatus for synchronizing information browsing among multiple systems.
- g. Baker et al. (US 5,144,692) System for controlling access by first system to portion of main memory dedicated exclusively to second system to facilitate input/output processing via first system.

Art Unit: 2109

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Wilser whose telephone number is (571) 270-1689. The examiner can normally be reached on Mon-Fri 7:30-5:00 EST (Alt Fridays Off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Myhre can be reached on (571) 270-1065. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


MPW
April 18, 2007


James Myhre
Supervisory Patent Examiner